



Chelan County  
WATER CONSERVANCY BOARD  
Application for Change/Transfer  
Record of Decision

For Ecology Use Only

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APR 20 2011

DEPARTMENT OF ECOLOGY - CENTRAL REGIONAL OFFICE

Reviewed by: \_\_\_\_\_

Date Reviewed: \_\_\_\_\_

Applicant: James R. Cannon

Application Number: CHEL-10-02

This record of decision was made by a majority of the board at an open public meeting of the Chelan County Water Conservancy Board held April 14, 2011.

☒ **Approval:** The Chelan County Water Conservancy Board hereby **grants** conditional approval for the water right transfer described and conditioned within the report of examination on **April 14, 2011** and submits this record of decision and report of examination to the Department of Ecology for final review.

☐ **Denial:** The Chelan County Water Conservancy Board hereby **denies** conditional approval for the water right transfer as described within the report of examination on **April 14, 2011** and submits this record of decision to the Department of Ecology for final review.

Signed:

Don Phelps, Chair  
Chelan County Water Conservancy Board

Date: 4-14-11

Approve ☒  
Deny ☐  
Abstain ☐  
Recuse ☐  
Other ☐

Waialele Hampton, Member  
Chelan County Water Conservancy Board

Date: 4/13/4/14/11

Approve ☒  
Deny ☐  
Abstain ☐  
Recuse ☐  
Other ☐

Chris Snapp, Member  
Chelan County Water Conservancy Board

Date: \_\_\_\_\_

Approve ☐  
Deny ☐  
Abstain ☐  
Recuse ☐  
Other ☐

\_\_\_\_\_  
(Name), (Title)  
(Board Name) Water Conservancy Board

Date: \_\_\_\_\_

Approve ☐  
Deny ☐  
Abstain ☐  
Recuse ☐  
Other ☐

\_\_\_\_\_  
(Name), (Title)  
(Board Name) Water Conservancy Board

Date: \_\_\_\_\_

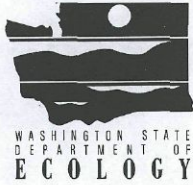
Approve ☐  
Deny ☐  
Abstain ☐  
Recuse ☐  
Other ☐

Mailed to the Department of Ecology Central Regional Office of Ecology, via certified mail, and other interested parties on \_\_\_\_\_.

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(Board Name)  
**WATER CONSERVANCY BOARD**  
*Application for Change/Transfer*  
OF A RIGHT TO THE BENEFICIAL USE OF THE PUBLIC WATERS OF  
THE STATE OF WASHINGTON

RECEIVED

APR 20 2011

DEPARTMENT OF ECOLOGY - CENTRAL REGIONAL OFFICE

**Report of Examination**

☒ Surface Water

☐ Ground Water

DATE APPLICATION RECEIVED 07/05/10	WATER RIGHT DOCUMENT NUMBER (i.e., claim, permit, certificate, etc.) S4-29646P	WATER RIGHT PRIORITY DATE 03/01/1988	BOARD-ASSIGNED CHANGE APPLICATION NUMBER CHEL-10-02
---------------------------------------	-----------------------------------------------------------------------------------	-----------------------------------------	--------------------------------------------------------

NAME James Cannon	(CITY) Entiat	(STATE) WA	(ZIP CODE) 98822
ADDRESS (STREET) 7940 Entiat River Road			

**Changes Proposed:** ☐ Change purpose ☐ Add purpose ☐ Add irrigated acres ☒ Change point of diversion/withdrawal

☒ Add point of diversion/withdrawal ☒ Change place of use ☒ Other (Temporary, Trust, Interties, etc.) Modify season of use:  
remove provision regarding interruptibility based on base flows in Entiat River.

**SEPA**

The board has reviewed the provisions of the State Environmental Policy Act of 1971, Chapter 43.21C RCW and the SEPA rules, chapter 197-11 WAC and has determined the application is: ☒ Exempt ☐ Not exempt

**BACKGROUND AND DECISION SUMMARY**

**Existing Right (Tentative Determination)**

MAXIMUM CUB FT/ SECOND 0.22 cfs	MAXIMUM GAL/MINUTE 98.8 gpm	MAXIMUM ACRE-FT/YR 26 afy	TYPE OF USE, PERIOD OF USE Irrigation 4/15-10/15				
SOURCE Entiat River			TRIBUTARY OF (IF SURFACE WATER) Columbia River				
AT A POINT LOCATED: PARCEL NO.	¼ SW	¼ SW	SECTION 28	TOWNSHIP N. 26 N.	RANGE 20 E.W.M.	WRIA 46	COUNTY. Chelan
LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS USED SE1/4SE1/4NW1/4; NE1/4NE1/4SW1/4; SW1/4SW1/4NE1/4; W1/2NW1/4SE1/4; SW1/4SE1/4, all in Section 33, T. 26N., R. 20 E.W.M., Chelan County							
PARCEL NO. 262033130100; 262033420050; 262033430050	¼	¼	SECTION 33	TOWNSHIP N. 26 N.	RANGE, 20 E.W.M.		

**Proposed Use**

MAXIMUM CUB FT/ SECOND 98.8	MAXIMUM GAL/MINUTE 26	MAXIMUM ACRE-FT/YR 26	TYPE OF USE, PERIOD OF USE Irrigation 4/1 – 10/31				
SOURCE Two wells			TRIBUTARY OF (IF SURFACE WATER)				
AT A POINT LOCATED: PARCEL NO. Well No. 1- 262033420050	Well No. 1 NW1/4	SE1/4	SECTION Both in 33	TOWNSHIP N. 26 N.	RANGE 20 E.W.M.	WRIA 46	COUNTY. Chelan
Well No. 2- 262033120100	Well No. 2 NW1/4	NE1/4					
LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED NE1/4 NW1/4; NE1/4 NE1/4 SE1/4 NW1/4; SE1/4SE1/4NW1/4; W1/2 NE1/4; N1/2 SE1/4, west of the Entiat; and E2/3 N2/3 SW1/4SE1/4, west of the Entiat River. Parcel numbers: 262033120050, 262033210010, 262033120100, 262033130100, 262033420050, 262033430050, and a portion of parcel numbers 262033210050 and 262033300050.							
PARCEL NO.	¼	¼	SECTION 33	TOWNSHIP N. 26N.	RANGE, 20 E.W.M.		



Board's Decision on the Application

MAXIMUM CUB FT/ SECOND	MAXIMUM GAL/MINUTE 82.18 gpm	MAXIMUM ACRE-FT/YR 26	TYPE OF USE, PERIOD OF USE Irrigation 4/1 – 10/31				
SOURCE Well No. 1: 1,650 feet west and 2,400 feet north from the southeast corner of Section 33, T. 26 N., R. 20 E.W.M. Well No. 2: 2,657 west and 1,032 feet south from the northeast corner of Section 33, T. 26 N., R. E.W.M.			TRIBUTARY OF (IF SURFACE WATER)				
AT A POINT LOCATED: PARCEL NO. Parcel No. 262033420050	Well No. 1 NW1/4	SE1/4	SECTION Both in 33	TOWNSHIP N. 26 N.	RANGE 20 E.W.M.	WRIA 46	COUNTY. Chelan
Parcel No. 262033120100	Well No. 2 NW1/4	NE1/4					
LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED AS APPROVED BY THE BOARD NE14 NW1/4; NE1/4 NE1/4 SE1/4 NW1/4; SE1/4SE1/4NW1/4; W1/2 NE1/4; N1/2 SE1/4, west of the Entiat; and E2/3 N2/3 SW1/4SE1/4, west of the Entiat River. Parcel numbers: 262033120050, 262033210010, 262033120100, 262033130100, 262033420050, 262033430050, and a portion of parcel numbers 262033210050 and 262033300050.							
PARCEL NO.	¼	¼	SECTION 33	TOWNSHIP N. 26 N.	RANGE, 20 E.W.M.		

DESCRIPTION OF PROPOSED WORKS

Well No. 1: A well 10 inches in diameter, 73 feet deep, with a 60 horsepower Aurora turbine pump connected to undertree sprinklers, handlines, and micro sprinklers throughout the farm.

Well No. 2: A well 10 inches in diameter, 58 feet deep, with a 30 horsepower Berkeley submersible pump connected to a 6 inch mainline running to handlines, micro sprinklers, and solidset undertree sprinklers throughout the farm.

2 wells



DEVELOPMENT SCHEDULE		
BEGIN PROJECT BY THIS DATE: Begun	COMPLETE PROJECT BY THIS DATE: October 31, 2011	COMPLETE CHANGE AND PUT WATER TO FULL USE BY THIS DATE: October 31, 2011

REPORT

BACKGROUND [See WAC 173-153-130(6)(a)]

On July 2, 2010, James Cannon of Entiat, Washington filed an application for change to change the point of diversion, add points of withdrawal, change the place of use to include all the lands irrigated under the Cannon water rights, and extend the season of use by 30 days to be consistent with the two water rights with priority dates of 1890 and 1902 under Water Right Certificate No. S4-28582C. The application also requested removal of the provision that “[n]o diversion of water under this authorization shall take place when the flow of the Entiat River falls below 116 cubic feet per second during November 1 through August 31, and 77 cubic feet per second during September 1 to November 1 as measured at the Ardenvoir gage.” The application was accepted at an open public meeting on July 8, 2010, and the board assigned application number CHEL-10-02.

The application was filed with three other change applications, which are being considered by the Board concurrently with this change request. The goal is to integrate all of the Cannon water rights into a single system withdrawing from Well No. 1 and Well No. 2 and sharing a common place of use.

On June 30, 2010, Ecology issued Reports of Examination approving changes to WRC No. 130056 and WRC No. 130057, two other water rights owned by the Cannons. Information contained in Reports of Examination WRTS Files No. CS4-130056 and CS4-130057 is used in this Report of Examination (ROE).

Attributes of Water Rights as Currently Documented and Proposed Changes

Attributes	Existing	Proposed
Water Right Document No.	S4-29646P	
Name on certificate, claim, permit:	Randolph N. Cannon and James R. Cannon	Estate of Randolph N. Cannon and James R. Cannon
As modified by Certificate of Change number:	NA	
Priority Date, First Use:	March 1, 1988	
Date of Application:		July 2, 2010
Instantaneous Quantity:	0.22 cfs	98.8
Annual Quantity:	26 afy	No change
Source:	Entiat River	Well No. 1 Well No. 2
Point of Diversion or Withdrawal:	SW1/4SW1/4 of Section 28, T. 26 N., R. 20 E.W.M. (Cannon-Anderson Ditch)	Well No. 1: NW1/4SE1/4 of Section 33, T. 26 N., R. 20 E.W.M.  Well No. 2: NW1/4NE1/4 of Section 33, T. 26 N., R. 20 E.W.M.
Purpose of Use:	Irrigation of 10 acres	No change
Period of Use:	April 15- October 15	April 1 – October 31
Place of Use:	SE1/4SE1/4NW1/4; NE1/4NE1/4SW1/4; SW1/4SW1/4NE1/4; W1/2NW1/4SE1/4; SW1/4SE1/4 of Section 33, T. 26 N., R. 20 E.W.M.	NE1/4 NW1/4; NE1/4 NE1/4 SE1/4 NW1/4; SE1/4SE1/4NW1/4; W1/2 NE1/4; N1/2 SE1/4, west of the Entiat River; and E2/3 N2/3 SW1/4SE1/4, west of the Entiat River.
Existing Provisions:	Family Farm Act water right  Maximum combined diversion under Water Right Claims	No change  Maximum combined diversion under Water Right Claims



130056 and 130057 (1.74 cfs), Certificate No. S4-28582C (0.1 cfs), Water Right Claim No. 095511 (0.13 cfs) and this permit shall not exceed 2.19 cfs. Any portion of the defined quantity withdrawn from the well will be proportionately reduced from the diversion.	130056 and 130057 (650 gpm), Certificate No. S4-28582C, Water Right Claim No. 095511 and this permit shall not exceed 835.54 gpm.
Exercise of this right is interruptible based on instream flows in the Entiat River as measured at the Ardenvoir gage.	Remove provision: Right is non-interruptible based upon available water in the reserve under Chapter 173-546 WAC.

<u>Attributes</u>	<u>Existing</u>	<u>Proposed</u>
Water Right Document No.	S4-28582C	
Name on certificate, claim, permit:	Randolph N. Cannon and James R. Cannon	Estate of Randolph N. Cannon and James R. Cannon
As modified by Certificate of Change number:	NA	
Priority Date, First Use:	December 27, 1984	
Date of Application:		July 2, 2010
Instantaneous Quantity:	44.9 gpm (0.1 cfs)	No change
Annual Quantity:	20 afy	No change
Source:	Entiat River	Well No. 1 Well No. 2
Point of Diversion or Withdrawal:	SW1/4SW1/4 of Section 28, T. 26 N., R. 20 E.W.M. (Cannon-Anderson Ditch)	Well No. 1: NW1/4SE1/4 of Section 33, T. 26 N., R. 20 E.W.M.  Well No. 2: NW1/4NE1/4 of Section 33, T. 26 N., R. 20 E.W.M.
Purpose of Use:	Irrigation of 5 acres	No change
Period of Use:	April 15 – October 15	April 1 – October 31
Place of Use:	SW1/4SE1/4 of Section 33, T. 26 N., R. 20 E.W.M.	NE1/4 NW1/4; NE1/4 NE1/4 SE1/4 NW1/4; SE1/4SE1/4NW1/4; W1/2 NE1/4; N1/2 SE1/4, west of the Entiat River; and E2/3 N2/3 SW1/4SE1/4, west of the Entiat River.
Existing Provisions:	Family Farm Act water right	No change

<u>Attributes</u>	<u>Existing</u>	<u>Proposed</u>
Water Right Document No.	GWC-26270C	
Name on certificate, claim, permit:	Randolph N. Cannon	Estate of Randolph N. Cannon
As modified by Certificate of Change number:	NA	
Priority Date, First Use:	June 23, 1979	
Date of Application: 040-106(0505)		July 2, 2010



Continued

Instantaneous Quantity:	600 gpm	No change
Annual Quantity:	120 afy irrigation 10.6 afy frost control 2 afy group domestic	No change
Source:	Well No. 1	Well No. 1 Well No. 2
Point of Diversion or Withdrawal:	Well No. 1: NW1/4SE1/4 of Section 33, T. 26 N., R. 20 E.W.M.	Well No. 1: NW1/4SE1/4 of Section 33, T. 26 N., R. 20 E.W.M.  Well No. 2: NW1/4NE1/4 of Section 33, T. 26 N., R. 20 E.W.M.
Purpose of Use:	Frost control Irrigation of 30 acres Group domestic supply	No change
Period of Use:	March 15- June 1 (Frost) April 15- Oct 15 (Irrigation)	March 15- June 1 (Frost) April 1- October 31 (Irrigation)
Place of Use:	SW1/4NE1/4 and NW1/4SE1/4 of Section 33, T. 26 N., R. 20 E.W.M., all lying west of the Entiat River	NE1/4 NW1/4; NE1/4 NE1/4 SE1/4 NW1/4; SE1/4SE1/4NW1/4; W1/2 NE1/4; N1/2 SE1/4, west of the Entiat River; and E2/3 N2/3 SW1/4SE1/4, west of the Entiat River.
Existing Provisions:	Any water withdrawn from the well under this groundwater right is supplemental to existing surface water rights for the place of use.	No provisions.

<u>Attributes</u>	<u>Existing</u>	<u>Proposed</u>
Water Right Document No.	S4-28583C	
Name on certificate, claim, permit:	Randolph N. Cannon and James R. Cannon	Estate of Randolph N. Cannon and James R. Cannon
As modified by Certificate of Change number:	NA	
Priority Date, First Use:	December 27, 1984	
Date of Application:		July 2, 2010
Instantaneous Quantity:	700.44 gpm (1.56 cfs)	No change
Annual Quantity:	12.4 afy	No change
Source:	Entiat River	Entiat River Well No. 1 Well No. 2
Point of Diversion or Withdrawal:	SW1/4NE1/4 of Section 33, T. 26 N., R. 20 E.W.M.	SW1/4NE1/4 of Section 33, T. 26 N., R. 20 E.W.M.  Well No. 1: NW1/4SE1/4 of Section 33, T. 26 N., R. 20 E.W.M.  Well No. 2: NW1/4NE1/4 of Section 33, T. 26 N., R. 20 E.W.M.
Purpose of Use:	Frost control	No change
Period of Use:	As required	March 15- June 1



Continued

Place of Use:	NE1/4NW1/4, W1/2NE1/4 southwest of Entiat River and NE1/4SE1/4NW1/4 and NW1/4SE1/4 west of Entiat River all in T. 26 N., R. 20 E.W.M.	NE1/4 NW1/4; NE1/4 NE1/4 SE1/4 NW1/4; SE1/4SE1/4NW1/4; W1/2 NE1/4; N1/2 SE1/4, west of the Entiat River; and E2/3 N2/3 SW1/4SE1/4, west of the Entiat River.
Existing Provisions:	None	

Existing provisions: Exercise of this right is interruptible based on instream flows in the Entiat River as measured at the Ardenvoir gage. Family Farm Act water right. Maximum combined diversion under Water Right Claims 130056 and 130057 (1.74 cfs), Certificate No. S4-28582C (0.1 cfs), Water Right Claim No. 095511 (0.13 cfs) and this permit shall not exceed 2.19 cfs. Any portion of the defined quantity withdrawn from the well will be proportionately reduced from the diversion.

*Tentative determination of the water right*

The tentative determination is provided on the front page of this report.

*History of water use*

The Cannon farm as shown on Attachment A is located in the Entiat River valley approximately 8 river miles upstream of the Entiat River’s confluence with the Columbia River, about 7 miles northwest of the city of Entiat, Washington. The Cannons own orchard and pasture land on both sides of the river totaling approximately 154 acres within Water Resource Inventory Area (WRIA) 46. The change applications, if approved, will authorize these Cannon water rights to have Well No. 1 and Well No. 2 as points of withdrawal and the water to be used within the entire place of use.

Surface Water Permit No. S4-29646P was issued to the Cannons with a priority date of March 1, 1988. The permit authorizes the maximum diversion from the Entiat River of 0.22cfs, 26 ac-ft/yr, for irrigation of 10 acres from April 15 to October 15. The authorized POD is the Cannon-Anderson Ditch. The place of use includes pastures southwest of the Entiat River within Parcels No. 262033130100; 262033420050; 262033430050; and a portion of 262033300050. The Cannon-Anderson Ditch is no longer in operation and water used within the POU is withdrawn from Well No. 1 as described in this report.

*Historic Points of Diversion and Withdrawal*

Commencing operation in 1890, the Cannon Ditch historically served the Cannon orchard and pasture lands west of the Entiat River approximately 1,400 feet southeast of the historic POD. Put into operation by 1902, the Cannon–Anderson Ditch historically served the Cannon’s orchard and pasture lands lying east of the Entiat River approximately 2,300 feet southeast of the historic POD. In the early 1960’s, the Cannons abandoned the use of the Cannon Ditch, switching solely to the Cannon–Anderson Ditch.

*Proposed Points of Withdrawal*

The Cannons put the water under S4-29646 to beneficial use by September 1, 1996 and filed a Proof of Appropriation with Ecology. However, they had not yet applied to change the point of diversion to a point of withdrawal from the well they were using. In response to the filing of the POA, Ecology informed Mr. Cannon in a letter dated September 12, 2006 that he could stay with the point of diversion from the Entiat River or file a change application with the Chelan County Conservancy Board or Ecology. Mr. Cannon has chosen to file this request for change to withdraw water from two wells as part of the integrated system.

Well No. 1 was drilled in 1980. The well was not assigned a unique well identification number, although a well driller’s log was submitted to Ecology in 1980. The well is 10 inches in diameter, 73 feet deep with a static water level of 12 feet at the time of drilling. A 60 horsepower Aurora turbine pump rated at 600 gpm is connected to the well. The well penetrates sands and gravels and is located within the NW¼SE¼ of Section 33, T. 26 N., R. 20 E.W.M. In addition to waters withdrawn from this well under Water Right Claim No. 130056 and Water Right Claim No 130057, water is also withdrawn under Ground Water Certificate No. G4-26270C. (Refer to the **Other Rights Appurtenant to the Place of Use** section of this report for more details). A water meter is installed on Well No. 1.

Well No. 2, drilled in 1995, is located within the NW¼NE¼ of Section 33, T. 26 N., R. 20 E.W.M., approximately 20 feet from the left bank of the Entiat River. A water meter is installed on the well. A well log was submitted to Ecology in 1995 and the well was assigned unique well identification number ABX237. The well is 10 inches in diameter, 58 feet deep with a static water level of 10.5 feet at the time of drilling. A 30 horsepower Berkley submersible pump rated at 350 gpm is connected to the well. The well penetrates clay, boulders, gravel, and sands. A detailed description of the hydrogeologic setting of the proposed POW is included in the **Hydrologic/Hydrogeologic Evaluation** section of this report.

The POD authorized in Permit S4-29646P, the Cannon-Anderson Ditch, is no longer in use. Wells No. 1 and 2 supply all the irrigation water associated with the water right. Diversions from the POD previously associated with the water right have been discontinued.



Water is delivered to the Cannon orchard and pastures via two independent irrigation systems; orchard irrigation water is primarily withdrawn from Well No. 1 and pasture irrigation water is withdrawn from Well No. 2. The irrigation system connected to Well No. 1 consists of a 60 horsepower Aurora turbine pump and two six-inch mainlines used to convey water across the property. A buried undertree system is installed to irrigate the orchards using Rainbird 20A sprinklers with 7/64<sup>th</sup> inch nozzles. The irrigation system connected to Well No. 2 consists of a 30 horsepower Berkeley submersible pump connected to a six inch mainline. The majority of the system used to irrigate the pastures consists of solid set with a few handlines in use on the smaller fields. Rainbird 20AH sprinklers with 1/8<sup>th</sup> inch nozzles are used for permanent irrigation in the pastures and Rainbird 30A sprinklers with 9/64<sup>th</sup> inch nozzles are used for the handlines.

### ***Place of Use***

With this and subsequent proposed changes, Mr. Cannon intends to modify his water rights to enable the integrated management and use of his water rights throughout the Cannon farm. Historical aerial photographs and testimony from Mr. Cannon indicate that 10 acres of pasture within the SE1/4NW1/4, SW1/4NE1/4 and NW1/4SE1/4 historically have been irrigated under Water Right Permit S4-29646P. This land is within the proposed combined place of use as shown on Attachment A.

Under normal circumstances the place of use of a surface water permit may not be changed because the water has not yet been put to beneficial use. RCW 90.03.380(1) authorizes a change in place of use of a "right to the use of water which has been applied to a beneficial use[.]" Water under S4-29646 has been put to beneficial use and the right should be eligible for a change in place of use.

The Cannons put the water to beneficial use by September 1, 1996, almost 15 years ago. They filed a Proof of Appropriation ("POA") with Ecology that same month. The only reason the POA was not accepted is because the Cannons had not filed to change the point of diversion under the permit to the point of withdrawal they have been using since 1996. See September 12, 2006 letter from Ecology to Mr. Cannon, Ex. 7 to this change application. The Cannon-Anderson Ditch was abandoned in 1996 and since that time all water has been withdrawn from the wells. The requested change in point of diversion to the two wells that is before the Board is intended to align the water use under permit S4-29646 with the actual points of withdrawal.

The purpose of the prohibition on changing the place of use of a permit is to prevent speculation. Speculation could occur if a water right permit was obtained for one purpose, not developed and put to beneficial use, but then allowed to be changed for another purpose. "What this means is that once a permit is obtained, the essential project must remain the same. Otherwise, it would be possible for applicants to apply for one project to tie-up the water right, all the while betting that when something more lucrative came along they would be able to "amend" their project, thus replacing the old with the new. This is speculation. And it is precisely this type of speculation that the court in *R.D. Merrill Co.* sought to address." *Famiglia v. Ecology*, PCHB No. 03-072, citing *R.D. Merrill v. PCHB*, 137 Wn.2d 118 (1999). The Cannon project has not changed. The water right permit was obtained for irrigation, has been used for irrigation, and will continue to be used for irrigation.

This is also a matter of "judicial" economy. If this Board approves the change in point of diversion but declines to change the place of use of the permit, Mr. Cannon will have to wait for Ecology to conduct a proof investigation and issue a certificate, and then turn right around and file a new change application to change the place of use. This Board has done a site investigation, which can serve as a proof examination for the permit. To require Mr. Cannon to wait for a certificate for a right that has been beneficially used for nearly 15 years, that will continue to be used for the original purpose and that has been investigated by this Board, and only to go through the application process again would be the height of inefficiency for no good reason. This Board declines to follow that path and recommends the place of use of the permit be changed.

### ***Purpose of Use***

No change in purpose of use is proposed in this application.

### ***Season of Use***

The irrigation season stated on Permit S4-29646P is April 15 through October 15. The earliest water rights on the Cannon land dating from 1890 and 1902 have an irrigation season of April 1 through October 31. Because the irrigation system is to become integrated, Mr. Cannon requested that the season of use for S4-29646P be modified to be consistent with the primary rights on the Cannon property.

Due to the system becoming an integrated system relying on two wells that serve as the supply for numerous water rights the Board determined that it would be in the best interest of water management to make the season of use consistent with the other existing water rights. The Board does not anticipate any actual change in water use from the historical use, nor change in the annual consumptive quantity, but it will consolidate the reporting requirements. To that end the Board has determined that the season of use should be from April 1 to October 31 of each year.

### ***Water Quantities***

Permit S4-29646P authorizes up to 0.22 cfs (98.8 gpm) instantaneous diversion (Qi) from the Cannon-Anderson Ditch. Mr. Cannon intends to use both Well No 1 and the proposed Well No. 2 to irrigate lands on both sides of the Entiat River, within the POU's of all of the Cannon water rights.

### ***Measuring and Reporting Water Use***



RCW 90.03.360 requires that the owner of any water diversion maintain substantial controlling works and a measuring device. It must be constructed and maintained to permit accurate measurement and practical regulation of the flow of water diverted. Technical requirements for the measuring and reporting of water use are described in Chapter 173-173 WAC. If approved, this authorization would contain provisions requiring the measuring and reporting of the quantities of water withdrawn or diverted.

Water use meters are installed on both Well No. 1 and Well No. 2.

*Previous changes*

There have been no changes to the water right since the permit was issued.

*SEPA*

- The board has reviewed the proposed project in its entirety. A water right application is subject to a SEPA threshold determination (i.e. an evaluation whether there are likely to be significant adverse environmental impacts) if any one of the following conditions is met.
  - It is a surface water right application for more than one cubic feet per second (cfs), unless that project is for agricultural irrigation, in which case the threshold is increased to 50 cfs, so long as that irrigation project will not receive public subsidies;
  - It is a groundwater right application for more than 2,250 gallons per minute (gpm);
  - It is an application that, in combination with other water right applications for the same project, collectively exceed the amounts above;
  - It is a part of a larger proposal that is subject to SEPA for other reasons (e.g., the need to obtain other permits that are not exempt from SEPA);
  - It is part of a series of exempt actions that, together, trigger the need to do a threshold determination, as defined under WAC 197-11-305.

Because this application does not meet any of these conditions, it is categorically exempt from SEPA and a threshold determination is not required.

The information or conclusions in this section were authored and/or developed by Don Phelps, Waikele Hampton and Mary McCrea.

**COMMENT AND PROTESTS** [See WAC 173-153-130(6)(b)]

Public notice of the application was given in the Wenatchee World on July 22 and 29, 2010. Protest period ended on August 30, 2010.

There were no protests received during the 30-day protest period. In addition, no oral and written comments were received at an open public meeting of the board or other means as designated by the board.

**INVESTIGATION** [See WAC 173-153-130(6)(c)]

The following information was obtained from a site inspection conducted by Don Phelps and Waikele Hampton on July 15, 2010, technical reports, research of department records, and conversations with the applicant and/or other interested parties.

*Proposed project plans and specifications*

Changes proposed to this right include:

1. changing the point of diversion from the Entiat River to two wells in the NW1/4 SE1/4 and the NW1/4 NE1/4 of Section 33, T. 26 N., R. 20 E.W.M.;
2. adding to the place of use to include all land authorized for irrigation under other water rights owned by James Cannon and the estate of Randolph Cannon in Section 33, T. 26N., R. 20 E.W.M., Parcel Nos. 262033120050, 262033210010, 262033120100, 262033130100, 262033420050, and 262033430050.
3. modifying the season of use to be consistent with the earliest priority date water rights owned by James Cannon and the estate of Randolph Cannon, and
4. removing the provision that the water right is interruptible.

*Other water rights appurtenant to the property (if applicable)*

One surface water certificate, one groundwater certificate, two surface water permits, Water Right Claim No. 130056 and Water Right Claim No 130057 as changed by Certificate of Change No. CV1-4P276 and approved for a subsequent change by Reports of Examination WRTS File Nos. CS4-WRC130056 and CS4-130057, and five additional water right claims are appurtenant to the proposed place of use of S4-29646P. Mr. Cannon has concurrent with this change application, filed applications for change for the surface water certificate, groundwater certificate and surface water permit. The applications request that both Well No. 1 and Well No. 2 be authorized as points of withdrawal under each right and that the place of use include the combined place of use under all of the Cannon water rights.

*S4-28582C – Randolph N. Cannon and James R. Cannon*



Continued

Surface Water Certificate No. S4-28582C, a Family Farm Act water right, was issued to the Cannons with a priority date of December 27, 1984. The certificate authorizes the diversion from the Entiat River of a maximum of 0.1 cfs, 20 ac-ft/yr, for irrigation of 5 acres from April 15 to October 15. The POU includes a portion of the Cannon's pasture lands on the southwest (river right) side of the Entiat River.

*S4-28583C – Randolph N. Cannon and James R. Cannon*

Surface Water Certificate No. S4-28583C was issued to the Cannons with a priority date of December 27, 1984. The certificate authorizes the diversion from the Entiat River a maximum of 1.56 cfs, 12.4 ac-ft/yr, for frost control as required. The POU includes the Cannon's orchards on the southwest (river right) side of the Entiat River. During the site investigation the pump in the Entiat River appeared to be maintained and Mr. Cannon stated he uses the pump for frost protection as weather conditions demand.

*G4-26270C – Randolph N. Cannon*

Superseding Ground Water Certificate No. G4-26270C was issued to Mr. Cannon with a priority date of June 23, 1979. The certificate authorizes the withdrawal from a well of 600 gpm, 10.6 ac-ft/yr, for frost protection as required from March 15 to June 1; 120 ac-ft/yr for the irrigation of 30 acres from April 15 to October 15; and 2 ac-ft/yr for continuous group domestic supply. All water withdrawals for irrigation are considered "supplemental to existing surface water rights for the described place of use". The term "supplemental" in this case is used to describe the irrigation portion of G4-26270C as a non-additive supply of water; meaning the instantaneous and annual quantities of water withdrawn under G4-26270C for irrigation shall be debited against maximum instantaneous and annual quantities authorized and claimed from existing surface water rights and claims appurtenant to the POU. Existing water rights as of the priority date of the certificate were WRC 130056 and WRC 130057.

*S4-29352P – Randolph N. Cannon and James R. Cannon*

Surface Water Permit No. S4-29352P was issued to the Cannons with a priority date of August 4, 1987. The permit authorizes the diversion of up to 1.56 cfs, 5 ac-ft/yr, for frost protection from April 1 to May 31. The place of use includes the Cannon's orchard on both sides of the Entiat River. The point of diversion and pump are the same as used for frost protection under Surface Water Certificate No. S4-28583. During the site investigation the pump in the Entiat River appeared to be maintained and Mr. Cannon stated he uses the pump for frost protection as weather conditions demand.

*WRC 130056*

On February 25, 1975, Ecology assigned Water Right Claim No. 130056 to a claim filed by Randolph N. Cannon. The claim asserts a right to 2.2 cfs, 320 acre-feet per year (ac-ft/yr), for the irrigation of 80 acres and stock watering from April through September from a POD on the Entiat River. The claimed date of first putting water to use is 1890. The claimed POD location corresponds to the historical location of the Cannon Ditch, within the SW $\frac{1}{4}$  of the SW $\frac{1}{4}$  of Section 28, T. 26 N., R. 20 E.W.M. The claimed place of use (POU) is the NW $\frac{1}{4}$  of the SE $\frac{1}{4}$  and the SW $\frac{1}{4}$  of the NE $\frac{1}{4}$  of Section 33, T. 26 N., R. 20 E.W.M. The claimed POU corresponds to lands that are currently irrigated by the Cannons on the west side of the Entiat River.

*WRC 130057*

Also on February 25, 1975, Ecology assigned Water Right Claim No. 130057 to a claim filed by Randolph N. Cannon. The claim asserts a right to 1.1 cfs, 128 ac-ft/yr, for the irrigation of 45 acres, from April 15 to October 1 from a POD on the Entiat River. The claimed date of first putting water to use is 1902. The claimed POD location corresponds to the historical location of the Cannon-Anderson Ditch, within the SW $\frac{1}{4}$  of the SW $\frac{1}{4}$  of Section 28, T. 26 N., R. 20 E.W.M. The claimed POU corresponds to lands that are currently irrigated by the Cannons on the east side of the Entiat River. A total of 65 acres of irrigation on the Cannon farm are claimed under Water Right Claim No. 130056 and Water Right Claim No. 130057.

Historical documents and statements by James Cannon evidence 65 acres of mixed orchard and pasture have been irrigated continuously since the claimed dates of first putting water to use under Water Right Claim No. 130056 and Water Right Claim No. 130057.

In 1986, Ecology authorized the addition of Well No. 1 as a POW to Water Right Claim No. 130056 and Water Right Claim No. 130057 with the Report of Findings of Fact and Decision for CV1-4P276. The following provision describing the management of the claims was included in the report:

The 1.74 cfs herein authorized for diversion under Water Right Claims No. 130056 and No. 130057 shall be allowed only when the Cannon-Anderson ditch is the sole source utilized. If the well is the sole source, then the maximum instantaneous withdrawal shall be 1.34 cfs for irrigation of 65 acres. If the ditch and the well are used in combination, then authorized pumping rate shall be determined (within the range from 1.34 cfs to 1.74 cfs) in proportion to the rate diverted at each point.

Certificate of Change No. CV1-4P276 consolidated the management of Water Right Claim No. 130056 and Water Right Claim No. 130057 allowing the combined usage of the Cannon-Anderson Ditch and a POW. The change also merged the POUs of the claims to include 65 acres of the Cannon farm on both sides of the Entiat River.

In 2010, Ecology authorized the addition of Well No. 2 as a POW under Water Right Claim Nos. 130056 and 130057 in Reports of Examination WRTS File Nos. CS4-WRC 130056 and CS4-WRC 130057. The ROEs authorize a combined withdrawal from Wells No. 1 and No. 2 under these two water rights not to exceed 650 gpm for the irrigation of 65 acres.

*WRC130053 – Randolph N. Cannon*

A short-form claim was signed by Mr. Cannon on June 25, 1974 and was assigned Water Right Claim No. 130053 on February 25, 1975. The claim asserts a domestic and stock watering right from a well. The POU is the W $\frac{1}{2}$ NE $\frac{1}{4}$  of Section



Continued

33, T. 26 N., R. 20 E.W.M. The POU corresponds to the location of a home and a stock pen on the Cannon's farm east (river left) of the Entiat River.

*WRC130054 – Randolph N. Cannon*

A short-form claim was signed by Mr. Cannon on March 15, 1974 and was assigned Water Right Claim No. 130054 on February 25, 1975. The claim asserts a domestic right from a well. The place of use is the same as Water Right Claim No. 130053: W½NE¼ of Section 33, T. 26 N., R. 20 E.W.M. Water Right Claim No. 130054 may assert the right to domestic water supply for a home located on the southwest (river right) side of Entiat River within the claimed POU.

*WRC150162 – Randolph N. Cannon*

Water Right Claim No. 150162 was filed by Mr. Cannon on June 30, 1974 and was assigned Water Right Claim No. 150162 on March 21, 1975. The claim asserts a continuous domestic supply water right from a well in the amount of 10 gpm, one ac-ft/yr. The claimed date of first putting the water to use is March 1904. The POU claimed is within the NW¼ of SE¼ of Section 33, T. 26 N., R. 20 E.W.M. This claim may assert a right to domestic water supply for a home located within the claimed POU.

*WRC150163 – Randolph N. Cannon*

Water Right Claim No. 150163 was filed by Mr. Cannon on June 30, 1974 and was assigned Water Right Claim No. 150163 on March 21, 1975. The claim asserts a continuous domestic supply water right from a well in the amount of three gpm, ¼ ac-ft/yr. The claimed date of first putting water to use is June 1938. The place of use claimed is within the NW¼ of the SE¼ of Section 33, T. 26 N., R. 20 E.W.M. This claim may assert a right to domestic water supply for a home located within the claimed POU.

*WRC095511 – Rowena G. Minkiewitz*

Water Right Claim No. 095511 was filed by Rowena G. Minkiewitz on April 11, 1974. The claim asserts a right to 200 miner's inches under a six-inch pressure, 140 ac-ft/yr, for the irrigation of 35 acres from April 1 to October 15 from a surface water source. Included with the claim is a notice of appropriation of water dated January 3, 1914 for the Cannon-Anderson ditch. The Report of Examination for Change Application No. S4-CV1-4P276 states that "it appears that approximately 6 acres had been irrigated" under Water Right Claim No. 95511 north of the Cannon property. It appears that water diverted under this claim has been used to irrigate the homestead lands north of the Cannon farm and Entiat River Road, owned by Mr. Cannon.

*Public Interest (groundwater only)*

The proposed change is subject to RCW 90.44.100 and therefore, cannot be detrimental to the public interest, including impacts on any watershed planning activities. The addition of a point of withdrawal to a water right must not have a detrimental effect upon the public interest (RCW 90.44.100(2)). A public interest investigation includes analyzing harm to fish and wildlife, effects on endangered or threatened species, impacts to wetlands, recreation, water quality, and any other concerns expressed by commenting and protesting parties.

In general, removing PODs and instream structures from a river has a positive impact on aquatic habitat. Diversions and instream pumps require frequent servicing that involves entering the river to repair structures, remove silt and debris from screens, and maintain pushup dams. Replacing a POD with a POW alleviates the need for repeated construction in the river and the associated disturbances from increased silt loading and stream bank modifications.

This change is consistent with the Entiat WRIA 46 Management Plan. The rule adopted to implement the Entiat Basin Watershed Plan confirms the existence of hydraulic continuity between surface water and groundwater sources with both the Lower and Upper Entiat River [.] WAC 173-546-090(2)(b). The Recommendations chapter of the Watershed Management Plan includes the following: "the Planning Unit recommends that water users in the Entiat River watershed continue conversion of surface water diversions to groundwater/well withdrawals when/where feasible." Plan at page 9-7.

*Tentative Determination*

In order to make a water right change decision, the Board must make a tentative determination on the validity and extent of the right. The Board has made the tentative determination as displayed upon the first page of this report. There are several circumstances that can cause the board's tentative determination to differ from the stated extent of the water right within water right documentation. Water right documents attempt to define a maximum limitation to a water right, rather than the actual extent to which a water right has been developed and maintained through historic beneficial use. Additionally, except for a sufficient cause pursuant to RCW 90.14.140, water rights, in whole or in part, not put to a beneficial use for five consecutive years since 1967 may be subject to relinquishment under Chapter 90.14.130 through 90.14.180 RCW. Water rights may additionally be lost through abandonment. The Board's tentative determination was based upon the following findings: historical evidence, power records, statements by Mr. Cannon, aerial photographs, the Reports of Examination for WRC 130056 and WRC 130057 issued by Ecology in 2010, historical documents, and observations during the site visits establish that there has been no relinquishment or abandonment of the water right.

**Water Use**

Permit S4-29646P authorizes up to 26 ac-ft/yr for the irrigation of 10 acres, equating to a water duty of 2.6 acre-feet per acre. The site investigation indicated that 10 acres of pasture continue to be irrigated on the Cannon's farm under this water right.



Continued

Mr. Cannon has testified that 2.6 acre-feet per acre is insufficient to provide adequate water on the porous valley lands where the Cannon farm is located. A 2009 analysis by Aspect Consulting, *Estimated Water Use*, confirms Mr. Cannon's observations. Given the soil types and meteorological data for the Entiat, Aspect concluded that an appropriate water duty is 6.0 acre-feet per acre for alfalfa and 7.0 acre-feet per acre for orchard. Mr. Cannon has filed an application for a new water right to increase the water duty and associated instantaneous withdrawal accordingly.

The power records submitted by Mr. Cannon, Ex. 8, and the analysis of the records conducted by Aspect Consulting, Ex. 9, support the full use of all of the Cannon water rights and the need for an additional water right to meet the crop requirements. Aspect Consulting analyzed power records for Well No. 1 from 2001-2008, and for Well No. 2 from 2004-2008 and determined that annual usage for the Cannon properties was approximately 500 ac-ft/yr. This equates to a water duty between 6 and 7 ac-ft/yr consistent with Aspect's analysis in its report of *Estimated Water Use*. The power records for 2009 are consistent with the earlier records. The 2010 records show a reduction in water use that may be attributed to the cooler, wetter spring weather.

Based upon the power records this Board concludes that the Cannons have been using the full quantity of water authorized for beneficial use under the combined water rights.

#### Place of Use

With this and subsequent proposed changes, Mr. Cannon intends to modify his water rights to enable the integrated management and use of his water rights throughout the Cannon farm. In Reports of Examination WRTS File Nos. CS4-WRC 130056 and CS4-WRC 130057, Ecology combined the places of use under the two water right claims, WRC 130056 and 130057 to include 65 irrigated acres. The place of use for S4-28582C includes 5 additional irrigated acres within the SW1/4SE1/4 of Section 33. Water right S4-29646P, which is also included in the requested changes, authorized the irrigation of an additional 10 acres within the SE1/4NW1/4 and the NE1/4SW1/4. WRC 0095511 authorizes irrigation of the property acquired by Mr. Cannon in the NE1/4NW1/4, which is the location of his residence. The combined place of use for all Cannon water rights is shown on Attachment A to this report. The map mirrors the place of use map for WRC 130056 and WRC 130057, with the additions of the place of use for S4-29646P and WRC 0095511.

The place of use is complicated by the fact there have been three surveys in the Entiat. According to information provided by Mr. Cannon, the first or original survey was the Federal Survey of 1883 conducted by Benson and Associates. The location of the 160-acre land patent issued to N.M. Cannon, Jim Cannon's grandfather, in 1901, and the place of use of the water rights represented by WRC 130056 (water right filed in 1890) and 130057 (water right filed in 1902), were based upon the 1883 survey. Because the 1883 survey was incomplete and inaccurate, the federal government initiated a "dependent resurvey" in 1915 (Adams). Section 33, T. 26N., R. 20 E.W.M. was resurveyed, including the Cannon homestead. However, unlike properties upriver from the Cannon homestead, the lands in Section 33 were not put into tracts.

According to a written statement from Rebecca J. Cate, Washington Professional Land Surveyor, Ex. 10, supplemental plats are on record and additional Federal surveys were done in the 1980's. The result is "[t]he locations of property lines for parcels based on the original 1883 survey are often different when compared to the locations of property lines for the same parcel based on Dependent Resurveys that began in 1915." Mr. Cannon has provided documents that show the 1915 Dependent Resurvey differs from the 1883 survey upon which the patent and original water rights were based and that the original 1883 survey established lines lying to the north and west of the lines from the 1915 Dependent Resurvey. See Ex. 11.

Based upon the documents provided by Mr. Cannon, the Board concludes that the place of use is as described in the Board's decision on page 2 and as shown on Attachment A.

#### Water Right Provisions

Mr. Cannon requests the Board remove a provision on the water right requiring interruption of use based on outdated base flows in the Entiat River. This Board has the authority to make recommendations to Ecology whether to grant or deny a change application. RCW 90.80.070. Therefore, it also has the authority to make recommendations to impose conditions on a water right. Ecology v. Theodoratus, 135 Wn.2d 582, 597 (1998) ("Where the department is vested with the discretion to grant or deny a change application, it is vested with the authority to impose reasonable conditions."). Since the Board can make recommendations to impose conditions, it follows the Board can also make recommendations to remove conditions.

The relevant timeline is as follows:

- March 1, 1988- Mr. Cannon filed Application No. S4-29646.
- 1992- Ecology and Fish and Wildlife began a study of instream flow requirements in the Entiat River.
- March 5, 1993-Permit S4-29646 issued subject to base flows in Entiat River.
- March 1995- Ecology and DFW present instream flow recommendations that were never codified.
- September 3, 2005- instream flows adopted by rule in Chapter 173-546.

Mr. Cannon filed an Application to Appropriate Public Waters, which resulted in issuance of Permit No. S4-29646 with a priority date of March 1, 1988. At the time the application was filed there were no instream flows or base flows set for the Entiat River. By the time Ecology approved the application by letter dated March 5, 1993, Ecology and DFW had conducted instream flow studies but the base flows were never adopted a rule. *Entiat WRIA 46 Management Plan October 2004* 5-2. However, Ecology included a provision in the permit that calls for interruption of the right when flows in the river fall to a certain level. This provision was based on the recommendations of minimum flows submitted by the Department of Wildlife. Report of Examination for Application No. S4-29646, p.4, March 4, 1993.



In 2005, Ecology adopted a rule to implement the Entiat River Watershed Management Plan, Chapter 173-546 WAC. The rule established instream flows with a priority date of September 3, 2005; the date the rule was adopted. Permit S4-29646 has a priority date of March 1, 1988 and is thus senior to these instream flows. Yet according to conditions on the permit the right is still interruptible based on older base flows that were never adopted by rule and have been replaced by the flows established by rule in 2005. The Cannons request a change in their water right to remove the provision requiring interruption in use of the right determined by base flows no longer in effect. This request is supported by other provisions in the Entiat rule.

Based on the Entiat Watershed Plan, Ecology determined there is water available for allocation in the Entiat Watershed and established a reservation of up to 5 cfs for specific future beneficial uses. The rule allocates up to 3 cfs of the reservation for commercial agriculture for appropriation in the Lower Entiat below river mile 16.2. The Entiat rule provides that new non-interruptible surface and ground water permits may be issued if "the water use qualifies for the reservation established in WAC 173-546-070." WAC 173-546-090(1)(b) (Emphasis added). The Cannon property is irrigated for commercial agriculture on property located at approximately river mile 8 of the Entiat River and would thus qualify as a new non-interruptible water right permit from the reserve.

If the provision on the Cannon water right that subjects use of the right to interruption based on outdated base flows is not removed, when new water rights are issued from the reserve the result would be that the Cannon water right with a senior priority date would be regulated in favor of junior instream flow rights under the rule. At the same time, junior water rights issued from the reserve would not be regulated based on instream flows. This result would be contrary to the principle of prior appropriation.

The Board agrees with Mr. Cannon's request to change the water right to remove the condition that the right is subject to interruption based upon instream flows so that the Cannon water right, with a priority date of March 1, 1988, does not in effect become junior to water rights with a later priority date.

Mr. Cannon also requests that a provision of the water right be modified based upon changes to two other Cannon water rights. A provision on S4-29646P limits the diversion under the permit (0.22 cfs) in combination with WRC No. 130056 and WRC No. 130057 (1.74 cfs), S4-28582C (0.1 cfs), and WRC No. 095511 (0.13 cfs) to 2.19 cfs. It also provides that "Any portion of the defined quantity withdrawn from the well for irrigation will be proportionately reduced from the diversion."

In 2010, Ecology authorized the addition of Well No. 2 as a POW under Water Right Claim Nos. 130056 and 130057 in Reports of Examination WRTS File Nos. CS4-WRC 130056 and CS4-WRC 130057. The ROEs authorize a combined withdrawal from Wells No. 1 and No. 2 under these two water rights not to exceed 650 gpm, which equals a 16.8% reduction from the surface water diversion rate. Applying this same reduction to the diversion rate for S4-29646P results in a withdrawal rate under the permit of 82.18 gpm. The authorized Qi under S4-28582C and WRC No. 09551 totals 103.27 gpm. The total rate of withdrawal under the five water rights should thus be 835.54 gpm.

The Board agrees that the provision should be updated to read: "The maximum combined withdrawal under Water Right Claim No. 130056 and No. 130057 (650 gpm), Certificate of Water Right No. S4-28582C (44.9 gpm), Water Right Claim No. 095511 (58.4 gpm), and Surface Water No. S4-29646C shall be 835.54 gpm."

*Geologic, Hydrogeologic, or other scientific investigations (if applicable)*

#### **Hydrologic/Hydrogeologic Evaluation**

The following statements are excerpted from the Report of Examination WRTS File No. CS4-WRC 130056, which included excerpts from an October 29, 2008 "Technical Memorandum, Re: Technical analysis for Water Right Change Application Nos. CS4-WRC130056 and CS4-WRC130057, Randolph Cannon" written by Ingrid Ekstrom, LHD, Ecology staff Hydrogeologist. The complete memorandum and list of references is available at the Department of Ecology, Central Region Office, upon request. Additional information regarding Well No. 1 was obtained from the well driller's log, maps of the area and site observations.

#### **Site Area Geology**

A description of the site-specific geology in the vicinity of the Cannon property is based on area well logs, topographic maps, and site observations. Well No. 2 is located approximately 20 feet (ft) east of the Entiat River along a narrow reach of the river valley. Directly downstream the river valley becomes slightly wider, where two canyons with intermittent streams, Ringstead Canyon and Crum Canyon, enter the valley. In the subject area, small terraces and alluvial fans are found on either side of the valley floor along the bedrock walls. Well No. 2 was drilled on the main valley floor at an elevation of approximately 10 to 15 ft above the river. Well No. 1 is located downstream in the slightly wider section of the valley. The well is located approximately 420 feet west of the Entiat River and was drilled on the main valley floor about 8 to 10 feet above the river.

Area well logs record sand, gravel, and cobbles with occasional silt and clay. The gravel and sand compose the majority of the unconsolidated material, and clays and silts appear to form discontinuous lenses closer to ground surface, typically within the upper 20 to 30 ft below ground surface (bgs). For example, the driller's log for Well No. 1 records clay and gravel to 22 feet bgs and gravel and sand between 23 and 73 feet. The driller's log for Well No. 2 records clay and gravel to 28 ft bgs and sand, gravel, and cobbles between 29 and 58 ft bgs. The nature of the unconsolidated material penetrated by Well No. 2 and its proximity to the Entiat River suggest that the well is completed into the recent fluvial deposits left behind by the Entiat River and/or sand and gravel glaciofluvial deposits from the alpine glaciers.



Continued

Well logs were also used to approximate the thickness of the unconsolidated sands and gravels that overlie the crystalline bedrock. Wells completed in the vicinity of Wells No. 1 and 2 range in depth from 30 to 120 ft below ground surface (bgs). Two of the well logs reviewed recorded encountering bedrock at depths of 64 and 82 ft bgs. However, these wells appear to be located (based on general well log location descriptions) near the bedrock valley wall, where the underlying bedrock slopes from the upland area toward the valley center. Well No. 1 was drilled to 72 feet and completed in unconsolidated sediments. Well No. 2 was drilled to 58 feet and completed in the unconsolidated sediments. As a result, the thickness of the unconsolidated deposits near Well Nos. 1 and 2 is greater than 72 ft, and may be as thick as 120 ft (the deepest area well cited above) or greater, with actual thicknesses depending on local bedrock topography.

### Site Area Hydrogeology

In order to analyze the proposal to add Wells No. 1 and 2 as POWs, it is important to consider the ground water flow system in the subject area and its relationship to the river system. A characterization of the hydrogeology for the site area included an analysis of the following: saturated thickness of the aquifer, ground water – surface water interaction, area well yields, aquifer parameters, and ground water recharge and discharge relationships.

Ground water levels provide an estimate of the aquifer's saturated thickness when considered with the thickness of valley fill deposits. In the subject area, ground water levels recorded on well logs for the unconsolidated deposits range from 8 to 81 ft bgs, with most between 8 and 30 ft bgs. Some of the deeper water levels are associated with wells at higher elevations and closer to the bedrock valley walls. Based on static water levels and well depths, the known saturated thicknesses for area wells range from 13 to 68 ft. The aquifer at Wells No. 1 and 2 has a known saturated thickness of at least 47.5 ft. Because the wells in Ecology's database that are directly adjacent to Wells No. 1 and 2 do not encounter bedrock, the saturated thickness of the unconsolidated sediments at the proposed well site is recognized to be greater than 47.5 ft. Actual aquifer saturated thickness will vary with the elevation of the underlying bedrock surface.

Ground water and surface water elevations and the nature of aquifer and riverbed sediments suggest good hydraulic communication between the Entiat River and the valley fill aquifer in the subject area. Static water level elevations in wells adjacent to the river are typically similar (within 5 to 10 ft) to the elevation of the Entiat River. Additionally, the applicant indicated that he has observed water level fluctuations in his stock water well that appear to correlate with changes in river level. The stock water well is located approximately 600 ft to the southeast of Well No. 2 and about 40 ft east of the river. During times of low river flow, the applicant reports that in the past, the water level in the well would drop below the pump intake. The presence of coarse sands and gravels that dominate the valley fill aquifer and the Entiat River bed also supports a system in which water is able to flow easily between the aquifer and the river. The above information and the proximity of Wells No. 1 and 2 to the river suggest a high degree of ground water - surface water interaction between the aquifer near Wells No. 1 and 2 and the Entiat River.

Area wells completed in the unconsolidated sediment aquifer are estimated by drillers to yield between 20 and 800 gpm, with most in the 20 to 100 gpm range. Many of the reported well yields depend on well efficiencies, well design, intended use, and test method, rather than a maximum aquifer yield. Sediment type, available saturated thickness, and well yields suggest the subject aquifer in the vicinity of Wells No. 1 and 2 has a transmissivity (T) in the range of 15,000 gallons per day per foot (gpd/ft) to 40,000 gpd/ft and a specific yield typical of unconfined sand and gravel aquifers. The above estimated T range falls within the basin wide range of 12,000 to 60,000 gpd/ft presented for Entiat valley fill deposits by Kirk et al (1995). Ground water recharge to the subject aquifer is from precipitation, irrigation return flows, and ground water – surface water interaction with the Entiat River. Ground water discharges to pumping wells and as seepage to the river, where head relationships and aquifer geometries facilitate.

### Hydrogeologic Analysis of the Site

Change Application No. CHEL-10-02 proposes to change from a surface water diversion to Well No. 1 and Well No. 2. Well No. 1 is 10 inches in diameter and was drilled to a depth of 72 ft in 1980. The well was completed with a Mill perforator that made 366 3" wide perforations from 25 to 71 ft bgs. A pump test was performed that yielded 800 gpm and a 35-foot drawdown after 4 hours. The well is currently equipped with a 60 horsepower submersible pump, and the applicant indicated that normal operational pumping rates are typically between 500 and 600 gpm. The well log records that a puddling clay surface seal was installed to a depth of 18 ft bgs.

Well No. 2 is 10 inches in diameter and was drilled to a depth of 58 ft in 1995. The well was completed with a 9-inch diameter 50-slot stainless steel well screen extending from 42 to 57 ft bgs. The driller conducted an airtest on April 12, 1995, and recorded a discharge rate greater than 230 gpm after 1.5 hours. The well is currently equipped with a 30 horsepower submersible pump, and the applicant indicated that normal operational pumping rates are typically between 250 and 350 gpm. The well log records that a bentonite surface seal was installed to a depth of 19 ft bgs.

The above well information is based on the 2008 site visit for WRTS File Nos. CS4-WRC130056 and CS4-WRC130057 and the July 2, 2010 site visit, conversations with the applicant, and the well logs on file with Ecology.

The information or conclusions in this section were authored and/or developed by Don Phelps, Waikele Hampton, the applicant and Mary McCrea

### CONCLUSIONS [See WAC 173-153-130(6)(d)]

#### *Tentative determination (validity and extent of the right)*

The water right proposed for change exists to the extent set forth on page 1.

#### *Relinquishment or abandonment concerns*



The water right has been continuously beneficially used. There are no relinquishment or abandonment concerns regarding this right.

*Hydraulic analysis*

No hydraulic analysis was required. The new points of withdrawal have been determined to be from the same body of public water as the original point of diversion based upon the hydrologic review summarized above.

*Consideration of comments and protests*

There were no comments or protests.

*Impairment*

The proposed changes can be made without injury or detriment to existing water rights.

*Public Interest*

The proposed change from a surface water diversion to a groundwater withdrawal is in the public interest.

**DECISION** [See WAC 173-153-130(6)(e)]

Name on Certificate:	James R. Cannon and Estate of Randolph N. Cannon
Priority Date:	03/01/1988
Instantaneous Quantity:	82.18 gpm
Annual Quantity:	26 acre-feet
Source:	two wells
Points of Withdrawal:	Well No. 1: NW1/4 SE1/4, Section 33, T. 26 N., R. 20 E.W.M. and 1,650 feet west and 2,400 feet north from the southeast corner of Section 33, T. 26 N., R. 20 E.W. M.  Well No. 2: NW1/4 NE1/4, Section 33, T. 26 N., R. 20 E.W.M. and 2,657 west and 1,032 feet south from the northeast corner of Section 33, T. 26 N., R. E.W.M.
Purpose of Use: (and number of acres irrigated)	26 acre-feet to irrigate 10 acres
Period of Use:	April 1 to October 31
Place of Use:	NE1/4 NW1/4; NE1/4 NE1/4 SE1/4 NW1/4; SE1/4SE1/4NW1/4; W1/2 NE1/4; N1/2 SE1/4, west of the Entiat; and E2/3 N2/3 SW1/4SE1/4, west of the Entiat River. Parcel numbers: 262033120050, 262033210010, 262033120100, 262033130100, 262033420050, 262033430050, and a portion of parcel numbers 262033210050 and 262033300050.

**PROVISIONS** [See WAC 173-153-130(6)(f)]

Family Farm Act water right.

All withdrawals under this permit, G4-26270C, S4-28582C, S4-29646P, WRC 130056 and WRC 130057, as recommended for change by Reports of Examination WRTS Files No. CS4-WRC 130056 and CS4-WRC 130057, and WRC 0095511 are limited to a combined withdrawal of 835.45 gpm and 306 acre-feet per year for the irrigation of 81 acres within the place of use shown on Attachment A.

*Conditions and limitations*

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**1. Well Construction Standards**

- 1.1. All wells constructed in the state shall meet the construction requirements of Chapter 173-160 WAC titled "Minimum Standards for the Construction and Maintenance of Wells" and Chapter 18.104 RCW titled "Water Well Construction". Any well that is unusable, abandoned, or whose use has been permanently discontinued, or which is in such disrepair that its continued use is impractical or is an environmental, safety or public health hazard shall be decommissioned.
- 1.2. All wells shall be tagged with a Department of Ecology unique well identification number. If you have an existing well and it does not have a tag, please contact the well-drilling coordinator at the regional Department of Ecology office issuing this decision. This tag shall remain attached to the well. If you are required to submit water measuring reports, reference this tag number.

**2. Measurements, Monitoring, Metering and Reporting**

- 2.1. An approved measuring device shall be installed and maintained for each of the sources identified by this water right in accordance with the rule "Requirements for Measuring and Reporting Water Use", Chapter 173-173 WAC.
- 2.2. Water use data shall be recorded weekly. The maximum rate of diversion/withdrawal and the annual total volume shall be submitted to the Department of Ecology by January 31st of each calendar year.
- 2.3. Department of Ecology personnel, upon presentation of proper credentials, shall have access at reasonable times, to the records of water use that are kept to meet the above conditions, and to inspect at reasonable times any measuring device used to meet the above conditions.



2.4. Chapter 173-173 WAC describes the requirements for data accuracy, device installation and operation, and information reporting. It also allows a water user to petition the Department of Ecology for modifications to some of the requirements. Installation, operation and maintenance requirements are enclosed as a document entitled "Water Measurement Device Installation and Operation Requirements".  
<http://www.ecy.wa.gov/programs/wr/measuring/measuringhome.html>

2.5. Ecology prefers water use data submitted via e-mail in the form on an electronic spreadsheet. However, hard copies are still accepted. In the future, recorded water use data may be submitted via the Internet. Contact the Central Regional Office for forms or information on available options for submittals.

**3. Water Use Efficiency**

Use of water under this authorization shall be contingent upon the water right holder's maintenance of efficient water delivery systems and use of up-to-date water conservation practices consistent with established regulation requirements and facility capabilities.

**4. Schedule and Inspections**

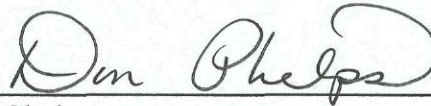
Department of Ecology personnel, upon presentation of proper credentials, shall have access at reasonable times, to the project location, and to inspect at reasonable times, records of water use, wells, diversions, measuring devices and associated distribution systems for compliance with water law.

*Construction Schedule*

Begin project and put water to beneficial use by October 31, 2011.

Signed at Wenatchee, Washington

This 14<sup>th</sup> day of April 2011.



Don Phelps, Chair  
Chelan County Water Conservancy Board

*If you have special accommodation needs or require this form in alternate format, please contact 360-407-6607 (Voice) or 711 (TTY) or 1-800-833-6388 (TTY).*

*Ecology is an equal opportunity employer*